What is claimed is:

1.   A method for decoding a signal, comprising:

    determining prior probabilities associated with an encoded input signal;

    performing iterative decoding on said encoded input signal, using said prior probabilities, to estimate a codeword associated with said encoded input signal, said codeword being within a base cell of an underlying lattice; and

    determining a cell translation associated with said encoded input signal based on said codeword.

2.   The method of claim 1, further comprising:

    mapping said codeword to an appropriate cell of said underlying lattice using said cell translation.

3.   The method of claim 1, wherein:

    said encoded input signal is coded with a multilevel coset code.

4.   The method of claim 1, wherein:

    said encoded input signal is coded with a lattice code.

5.   The method of claim 1, wherein:

    said encoded input signal is coded with a code having at least one constituent code; and

    determining prior probabilities includes determining a probability that a first coordinate of a first constituent code has a predetermined value, based on said encoded input signal.

6.   The method of claim 1, wherein:

    said encoded input signal has been modified by an interferer; and

    determining prior probabilities includes determining probabilities based upon statistics associated with said interferer.

1 7.   The method of claim 6, wherein:

2   said statistics associated with said interferer are known.

1 8.   The method of claim 6, wherein:

2   determining prior probabilities includes assuming statistics for said interferer

3 for use in determining said probabilities.

1 9.   The method of claim 8, wherein:

2   assuming statistics includes assuming that said interferer is uniformly

3 distributed within a Voronoi cell of a lattice.

1 10.   The method of claim 9, wherein:

2   assuming statistics includes assuming that said Voronoi cell is a ball.

1 11.   The method of claim 1, wherein performing iterative decoding includes:

2   performing a first decoding iteration, using said prior probabilities, to generate

3 first information; and

4   performing a second decoding iteration, using said first information, to generate

5 second information.

1 12.   The method of claim 1, wherein:

2   performing iterative decoding includes exchanging information between a

3 plurality of constituent decoders.

1 13.   The method of claim 12, wherein:

2   exchanging information between a plurality of constituent decoders includes

3 exchanging extrinsic information.

1 14.   A decoding system comprising:

2   a prior probability generator to generate prior probabilities associated with an

3   encoded input signal;

4   an iterative decoding unit to determine a codeword associated with said encoded

5   input signal by iterative decoding using said prior probabilities, said codeword being

6   within a base cell of an underlying lattice; and

7   a translation determination unit to determine a cell translation associated with

8   said encoded input signal based on said codeword.

1   15.   The decoding system of claim 14, further comprising:

2   a cell mapping unit to map said codeword to an appropriate cell of said

3   underlying lattice using said cell translation.

1   16.   The decoding system of claim 14, wherein:

2   said encoded input signal is coded with a multilevel coset code.

1   17.   The decoding system of claim 14, wherein:

2   said encoded input signal is coded with a lattice code.

1   18.   The decoding system of claim 14, wherein:

2   said iterative decoding unit includes multiple constituent decoders to decode

3   constituent codes of said encoded input signal.

1   19.   The decoding system of claim 18, wherein:

2   said constituent decoders exchange soft information between one another during

3   said iterative decoding.

1   20.   The decoding system of claim 18, wherein:

2   said iterative decoding unit includes at least one constituent decoder that is an

3   iterative decoder.

1   21.   The decoding system of claim 18, wherein:

2   said iterative decoding unit includes at least one constituent decoder that is a

3   soft in, soft out (SISO) decoder.

1   22.   The decoding system of claim 14, wherein:

2   said prior probability generator generates said prior probabilities based on

3   known statistics associated with an interferer.

1   23.   The decoding system of claim 14, wherein:

2   said prior probability generator assumes statistics for an interferer and generates

3   said prior probabilities based on said assumed statistics.

1   24.   The decoding system of claim 23, wherein:

2   said prior probability generator assumes that said interferer is uniformly

3   distributed within a Voronoi cell of a lattice.

1   25.   The decoding system of claim 24, wherein:

2   said prior probability generator assumes that said Voronoi cell is a ball.

1   26.   The decoding system of claim 23, wherein:

2   said prior probability generator assumes that said interferer has a Gaussian

3   distribution with zero mean and unknown variance.

1   27.   An article comprising machine-accessible media having associated data,

2   wherein the data, when accessed, results in a machine that performs a method for

3   decoding a signal, said method comprising:

4   determining prior probabilities associated with an encoded input signal;

5   performing iterative decoding on said encoded input signal, using said prior

6   probabilities, to estimate a codeword associated with said encoded input signal, said

7   codeword being within a base cell of an underlying lattice; and

8   determining a cell translation associated with said encoded input signal based

9   on said codeword.

1   28.   The article of claim 27, wherein said method further comprises:

2   mapping said codeword to an appropriate cell of said underlying lattice using

3   said cell translation.

1   29.   The article of claim 27, wherein:

2   said encoded input signal is coded with a multilevel coset code.

1   30.   The article of claim 27, wherein:

2   said encoded input signal is coded with a lattice code.

1   31.   The article of claim 27, wherein:

2   performing iterative decoding includes exchanging information between a

3   plurality of constituent decoders.

1   32.   The article of claim 31, wherein:

2   exchanging information includes exchanging extrinsic information between a

3   plurality of constituent decoders.